

REMARKS

I. Status of the Claims

Claims 1-14 were originally filed. Claims 3 and 14 were previously cancelled without prejudice. Claims 1, 2, and 4-13 stand rejected. By this Amendment, claim 1 has been amended to incorporate the limitations of claim 2. Claim 2 was subsequently cancelled. Upon the entry of this Amendment, claims 1 and 4-13 will be pending. Applicants respectfully request reconsideration of the application in view of the amendment and the following remarks.

II. Rejection under 35 U.S.C. § 103

The Examiner has made the following rejections under 35 U.S.C. § 103(a).

- Rejections to claims 1 and 7-8 over Admitted Prior Art (Specification at Figures 1 and 2 with explanation on page 6, line 24 through page 7, line 23) ("Admitted Prior Art 1") in view of Baldauf (US 2003/0027031 A1). See Office Action at 2-3;
- Rejections to claim 1 over Admitted Prior Art 1 in view of Schmid (U.S. Patent No. 6,080,503). *Id.* at 3-4;
- Rejections to claims 9 and 10 over Admitted Prior Art in view of Schmid as applied to claim 1, and further in view of Wald (US 7,087,339 B2). *Id.* at 4-5;
- Rejections to claims 11-13 over Applicant's prior art (Specification at page 6, line 24 to page 7, line 5), Schmid and Wald as applied to claim 9, and further in view of Barton (U.S. Patent No. 6,423,439 B1). *Id.* at 5-6;

- Rejections to claims 4 and 5 over Admitted Prior Art (Specification at page 6, line 6 through page 10, line 14 and Figures 1 and 2) ("Admitted Prior Art 2") in view of Baldauf as applied to claim 1, and further in view of Abd Elhamid (US 2005/0267004 A1). *Id.* at 6-7;
- Rejections to claim 6 over Admitted Prior Art 2 in view of Baldauf as applied to claim 1, and further in view of Dickman (US 2003/0049502 A1).
Id. at 7-8;
- Rejections to claim 2 over Admitted Prior Art 1 in view of Baldauf as applied to claim 1 and further in view of Murphy (US 2003/0039729 A1).
Id. at 8-9;
- Rejections to claim 2 over Admitted Prior Art 1 in view of Schmid as applied to claim 1 and further in view of Murphy. *Id.* at 9;
- Rejections to claims 4 and 5 over Admitted Prior Art 2 in view of Schmid as applied to claim 1 and further in view of Abd Elhamid. *Id.* 9-10;
- Rejections to claim 6 over Admitted Prior Art 2 in view of Schmid as applied to claim 1 above and further in view of Dickman. *Id.* 10-11.

Regarding rejections to claim 1, Applicants respectfully disagree that either Baldauf or Schmid discloses or suggests the feature that "the cooling fluid is separated from the ion exchange membrane." Baldauf in Figure 3 illustrates an "intermediate region" that shows ridges around a passage hole. See Baldauf at Figure 3. However, there is no disclosure that Baldauf intends to or would functionally result in the separation of the ion-exchange membrane and the cooling fluid. Although Schmid discloses "encapsulat[ing] the edge portion of the membrane 2" (see Schmid at col. 8,

lines 48-50), it indicates that such design is “used for sealing the gas spaces.” See Schmid at col. 6, lines 45-46.

Nevertheless, in order to advance prosecution, Applicants amended claim 1 to incorporate the limitations of claim 2 into claim 1. The previous rejections to claims 1 and 4-13 are therefore moot.

Claim 2 has been rejected over Admitted Prior Art 1 in view of Baldauf or Schmid as applied to claim 1 and further in view of Murphy. *Id.* at 8-9. The Examiner alleges that “Murphy et al. discloses an electrolyzer with a PEM (12) and bipolar plates (62) and the plate closest to the negative terminal is free of fluid passages (36) discloses a plate (14). It would have been obvious to include a plate with no passages at one end of the stack because this allows for the inlets and outlets of the system to be located on one side thus allowing for the fuel cell system to be placed against a wall.” *Id.* Applicants respectfully disagree.

At the outset, Murphy discloses an electrolysis device for generating ozone. See Murphy at paragraph [0061]. It uses water as the reactant in the anode and oxygen as the reactant in the cathode. *Id.* at paragraphs [0062]-[0064]. Murphy applies a DC current between the anode and cathode of the electrolysis device to generate ozone and protons in the anode and water and H₂O₂ in the cathode. *Id.*

One skilled in the art knows that a hydrogen fuel cell of in the Admitted Prior Art 1, Baldauf or Schmid consumes hydrogen in the anode and oxygen in the cathode to generate electricity and water. As emphasized below, one of ordinary skill in the art would not be led to apply a feature in the electrolysis device, which consumes electricity

and generates ozone, to a hydrogen fuel cell of Baldauf and Schmid, which consumes hydrogen and oxygen to generate electricity.

There are significant structural differences between the electrolysis device in Murphy and a fuel cell. For instance, the electrolysis device in Murphy does not contain a cooling device as water is the reactant in the anode and the product in the cathode. See Murphy at paragraphs [0061]-[0064]. One of ordinary skill in the art would not have installed a cooling device as in the Admitted Prior Art 1 in the electrolysis device in Murphy since heat generated in the electrolysis would be carried out by the water in the system. Further, the anode catalyst in Murphy is lead dioxide. *Id.* at paragraph [0074]. One skilled in the art would not have used lead dioxide in the anode electrode in a hydrogen fuel cell. See Specification at page 12, first paragraph.

The Examiner alleges that "allowing for the fuel cell system to be placed against a wall" would provide motivation to one skilled in the art to include a plate with no passages at one end of the stack. See Office Action at 9. None of the cited references, however, requires or suggests putting a fuel cell system against a wall.

For at least the reasons set forth above, one of ordinary skill in the art would not have combined the teachings in the Admitted Prior Art 1, Baldauf or Schmid, with that in Murphy to arrive at the claimed invention. Applicants submit that the case of *prima facie* obviousness has not been established and claim 1, as amended, is patentable over the cited references.

Claims 4-13 are dependent from claim 1, as amended. They are patentable for at least the reasons that claim 1, as amended, is patentable. Applicants respectfully request the withdrawal of the rejections to claims 4-13.

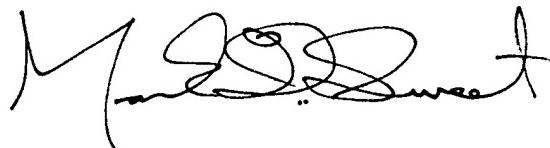
IV. Conclusion

In view of the foregoing amendments and remarks, Applicants respectfully request reconsideration of this application and the timely allowance of the pending claims.

Please grant any extensions of time required to enter this response and charge any additional required fees to our Deposit Account No. 06-0916.

Respectfully submitted,

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